Chapter 11 Transportation

Introduction

The Harrisonburg transportation system is comprised of several varying elements including an interstate highway, principal arterial roadways, a local road system, mass public transit, pedestrian facilities, bicycle facilities, public parking, and railroads. All facets of this system require constant maintenance, upgrades, replacement, and additions in order to serve the City's population properly. Each element of the system is complimentary to the others and serves the community as a network. Increasing usage on one element will likely cause a decreased usage on another.

It is important to note that transportation and land use should be linked. Changes in land use can change traffic patterns and affect the demands on transportation resources. There is growing scientific evidence that the provision of transportation improvements can have impacts on the demand for new development as well as on the welfare of existing neighborhoods and commercial areas. In 2007, the Virginia General Assembly passed significant legislation that intends to coordinate transportation with land use. House Bill 3202 made specific provisions that require localities to coordinate major land use changes with adjoining jurisdictions.

City Road Network

Classification System: The City road system consists of multiple classification designations that correspond to traffic volumes or design criteria. The Virginia Department of Transportation (VDOT) classifies streets as local, collector, or arterial. As of 2009, the City had 309.94 lane miles of local, collector, and arterial streets. Local streets provide direct access to adjacent land and make up a majority of the transportation network, but carry a small proportion of vehicle miles traveled. All local streets are assigned a speed limit of 25 mph unless otherwise posted. Collector streets are intended to support moderate to heavy levels of traffic, routing traffic from, and sometimes through, residential areas to employment centers and shopping areas. Speed limits assigned to these streets range from 25 mph to 40 mph depending on design, traffic volumes, pedestrian presence, and other factors.

Arterials are designed and intended for consistently heavy traffic volumes, and usually connect towns and provide linkages to interstate systems. While arterial streets comprise a smaller percentage of lane miles, they support the majority of vehicle miles traveled in the City. Speed limits range from 25 to 60 mph. Figure 11-1, included at the end of this chapter, shows the current classifications of City streets.

Accepted streets must meet design criteria from the City's Design and Construction Standards Manual (DCSM) and also those put forth by VDOT. Unaccepted and/or private streets receive restricted City services. For the most part, the City is not responsible for maintenance on those streets and roads. The City also has a number of undeveloped "paper" streets, which are streets that were planned and platted, but have not yet been built. Some of these paper streets meet the City's requirement of 50-feet of right-of-way width, while others have considerably narrower right-of-ways. Future street construction/extension can take place in order to improve traffic flow or facilitate land development. In some cases, paper streets provide a possibility for shared use

path connections. In the case of private development, construction costs are the responsibility of developers or residents. Figure 11-1 shows the existing City street network.

Transportation Funding: In the Commonwealth of Virginia, any town or city with a population of 3,500 or greater is responsible for maintaining their own transportation facilities. Through VDOT, the City is eligible to receive funding from two sources: Highway Maintenance Account Funds and Urban Construction Funds. The former can only be used for eligible maintenance activities on existing facilities while the Urban Construction Fund is earmarked for new construction projects and allocated to projects in the Commonwealth's Six Year Improvement Program (SYIP). Funding levels that localities receive for both maintenance and construction are ultimately determined by the General Assembly through the biennial budget process and then appropriated funding is prioritized and allocated by gubernatorial appointed members of the Commonwealth Transportation Board. Cities and towns receive funding on an annual basis.

The City competes for construction funding with other localities in the Staunton District, which includes the Counties of Frederick, Shenandoah, Page, Rockingham, Augusta, Alleghany, Rockbridge, Bath, and Highland along with the qualifying incorporated towns and cities located within each. Maintenance funds are determined based on the number of lane miles in a community, and in Fiscal Year 2010 the City received $3.7 million from the VDOT Maintenance Account.

Historically, maintenance funding increases approximately 3 to 4 percent each year. However, with the economic downturn, the Urban Construction Fund has significantly decreased for the City, which is consistent with the outcome for other localities throughout the state. In Fiscal Year 2007-2008, the City received $1,433,000 in urban construction funds. In Fiscal Year 2009-2010, the City anticipates receiving only $171,000. Recent economic realities have led to increased devolution by the state in allowing localities to take on more responsibility for managing and constructing road projects. However, funding restrictions have presented challenges to the City to keep projects on schedule.

The City has developed a maintenance and road project program on a three-pronged approach, which involves federal, state, and local funds. The City and its leaders have realized that it can utilize federal and state dollars to advance projects, however, significant contributions have been made from local coffers to keep projects moving forward.

Urban Construction Initiative: Harrisonburg is one of eleven urban communities in the Commonwealth that is a member of VDOT's Urban Construction Initiative. In the past, all urban localities have left road construction projects to VDOT to provide the majority of funding, project design, and construction management. The City's involvement in this initiative has resulted in finding ways to streamline the VDOT process and to take project management roles at the local level opposed to the state level. This has led to the development of a Certification Program that is available as of 2009 to qualifying localities in Virginia. This translates to less state government oversight, and more decision making responsibility at the local level. Certified localities will be required to abide by all state guidelines.

Traffic Signals & Street Capacity: As of the late summer 2009, the City has 86 traffic signals; many of which include pedestrian crosswalks (42 intersections with signalized crosswalks; 19 intersections marked but have unsignalized crosswalks). Traffic signals should only be installed when and where warranted based upon the criteria set forth by the Federal Highway Administration (FHA). There are a series of warrants for traffic signals that focus on traffic volumes, time amount of delay, accident history, and pedestrian presence. The City's goal is that all streets and intersections should operate on a Level of Service (LOS) "C" or better at all times. During peak hours, congestion occurs along arterial corridors during which the LOS drops to "D," "E," or in some locations, the worst level of service, grade "F".

Transportation Management Program: This Program's mission is to improve the quality of service of all modes of transportation in the City through the optimization of traffic signal function, including the programming, timing, and coordination of plans along corridors and consultation on intersection design enhancements. The program manages and regularly updates traffic volume and composition studies used to create models of traffic flow to assist in planning decisions.

As James Madison University (JMU) experiences increasing enrollment, new development occurs causing more people to move into the Harrisonburg community, therefore, it will become increasingly important for our transportation corridors to be re-evaluated and for traffic signal functions and intersection designs to be optimized. Figure 11-2 shows the location of current signalized intersections.

Transportation Safety Commission: City Council appoints a Transportation Safety Commission comprised of four appointed "at-large" citizens and City staff to make recommendations on issues related to traffic safety in the City. The Commission meets on a monthly basis and discusses complaints, concerns, and suggestions that are forwarded to them by citizens or City departments. Recommendations for improvements are typically directed to the Public Works Department and are funded through the department's operating budget; larger projects may be incorporated into the Capital Improvement Program.

Neighborhood Traffic Calming Program (NTCP): The Public Works Department administers the City adopted Neighborhood Traffic Calming Program in partnership with the Police Department and others to improve the character and appropriate use of local streets in neighborhood areas by incorporating community awareness and education, motorist education, enforcement, and physical devices. Neighborhood involvement in the program requires that neighbors submit an enrollment form to the Public Works Department with at least 75 percent of the residents' signatures, agreeing that there is a "perceived traffic problem." Once this criterion is met, speed and volume studies will be conducted to determine whether the perceived traffic problem can be substantiated. City staff will then hold a neighborhood meeting to solicit input from neighbors and begin developing passive solutions to traffic problems, which may include striping, signage, education, and/or enforcement. City staff will then re-analyze after implementation of suggested solutions. If passive traffic calming measures are deemed ineffective after being reanalyzed, physical roadway changes such as chicanes, traffic circles, raised speed tables, and/or speed humps, could be installed.

Any physical improvement that would restrict traffic must be considered by emergency response departments including Police and Fire. Physical improvements are constrained by available funds and strong neighborhood consensus. There have been three City neighborhoods that have enrolled in this program since its inception in 2002.

Master Transportation Plan: The Master Transportation Plan, which establishes the City's long-range transportation policies and road projects, includes the Street Improvement Plan, along with the forthcoming Bicycle & Pedestrian Plan and the Transportation Department's Transportation Development Plan. The Street Improvement Plan maps the details for needed improvements and new facilities. The locations of the improvements are often within or adjacent to property that has yet to develop. Identifying future improvements allows the City to work with property owners and developers to implement complete street construction.

There are several new streets shown on the Street Improvement Plan that would be "local" streets intended to promote increased connectivity between and within residential communities. The need for these roads will be driven primarily by development of surrounding areas and not by the need of the public at large. For this reason, although the City will encourage their construction, they are anticipated to be funded and constructed by private developers as property in the surrounding area is developed.

A full list of the proposed road improvement projects, as included in the Street Improvement Plan map, can be found in Table 11-1. The table and the associated Street Improvement Plan Map, Figure 11-3, are separated into quadrants by Main Street and Market Street.

Pedestrian and bicycle facilities shall be considered with all new road projects and improvements. A list of proposed pedestrian and bicycle facilities can be found in the City's adopted Bicycle & Pedestrian Plan. These proposed improvements should also be coordinated with Rockingham County's Comprehensive Plan and JMU's Comprehensive Master Plan.

Table 11-1. Street Improvement Plan – Recommendations and Schedule

NORTHWEST

A. **Northwest Connector**. Construct a new limited-access facility extending from Garbers Church Road at West Market Street and connecting it with Interstate Exit 251 in Rockingham County.

B. **Mount Clinton Pike from proposed Northwest Connector to Virginia Avenue.** Widen the street to a three- or four-lane facility with a median and to include bicycle and pedestrian facilities; some parts are located within Rockingham County.

C. **Intersection Improvement at Mount Clinton Pike, Park Road, and Chicago Avenue.** In conjunction with the Mount Clinton Pike improvements; consider a possible roundabout or other intersection improvement.

D. **Mount Clinton Pike to Acorn Dr Connector.**

E. **Acorn Drive to Friendship Drive Connection.**

F. **Parkwood Drive.** Construct a three lane facility including a median.

G. **Smith Avenue Connections.** Connect Smith Avenue between Greystone Street and Mt. Clinton Pike.

H. **Summit Avenue to West Market Street Connections.** Includes connecting Hillside Avenue to College Avenue.

I. **Chicago Avenue from Mt. Clinton Pike to Gay Street.** Create a center turn lane along with pedestrian and bicycle improvements.

J. **Intersection Improvement at Chicago Avenue and Waterman Drive.** Consider a roundabout design or other intersection improvement.

K. **Virginia Avenue from West Gay Street to 5th Street.** Widen to a four-lane facility, remove the parking, and construct sidewalks.

L. **Intersection Improvement at Virginia Avenue/High Street and West Gay Street.** Widen the intersection to accommodate truck traffic and extend the westbound left turn lane.

M. **North Liberty Street from Edom Road to North City Limits.** Create a center turn lane.

N. **West Washington Street.** Make improvements from North Main Street to Liberty Street.

NORTHEAST

A. **North Main Street from Noll Drive to Charles Street.** Create a center turn lane, remove parking, and construct pedestrian facilities.

B. **North Main Street to Linda Lane Connector.** Improve to a four-lane facility on Vine Street and construct between Vine Street and the intersection of Old Furnace Road through Rockingham County with bicycle and pedestrian facilities. Improve Smithland Road between Old Furnace Road and Linda Lane.

C. **East Washington Street Extended.** Extend East Washington Street into Rockingham County to intersect with the North Main Street to Linda Lane Connector and to North

Main Street at the Technology Park.

D. Linda Lane-Smithland Road-Keezletown Road Connections.

E. Keezletown Road. Construct a two-lane facility with median and bicycle and pedestrian improvements.

F. East Market Street. Improve westbound facilities between east City limits and Country Club Road to three lanes.

G. Country Club Road from East Market Street to Linda Lane. Construct a three lane facility including a center turn lane with bicycle and pedestrian facilities.

H. Country Club Road from Linda Lane to Vine Street. Improve the two lane facility with turning lanes and include bicycle and pedestrian facilities.

I. Linda Lane from East Market Street to Country Club Road. Widen to a five-lane facility with pedestrian facilities.

J. Old Furnace Road. Between Vine Street and Smithland Road, improve to a three lane facility including center turn lanes and bicycle and pedestrian improvements.

K. Carlton Street. Improve to a three lane facility including center turn lanes.

L. East Market Street Crossover Improvements between Evelyn Byrd and Burgess Road. Redesign crossovers from private entrances at three locations to reduce motor vehicle conflicts.

M. Intersection Improvement at East Market Street and Country Club Road. Widen Country Club Road at East Market Street to accommodate dual left turn lanes off of Country Club Road.

N. Intersection Improvement at Keezletown Road and Country Club Road. Include new traffic light.

O. Interchange Improvement. Construct I-81 interchange ramps at Smithland Road and Buffalo Drive and reconstruct the bridge.

P. Smithland Road-Old Furnace Road Intersection Improvement. Construct possible roundabout.

Q. Longview Drive and Vine Street. Reconstruct intersection and extend new road to City limits to connect with Leyland Drive in Rockingham County.

SOUTHEAST

A. Reservoir Street. Improve Reservoir Street to a three lane facility between East Market Street and Cantrell Avenue with pedestrian improvements.

B. Reservoir Street from University Boulevard to East City Limits. Create a four lane facility with a center turn lane, including pedestrian and bicycle facilities and enhancing traffic flow at intersections.

C. Norwood Street to East Market Street Connections. Construct a local street to connect Norwood Street, Hawkins Street, Franklin Street, Highland Avenue, Long Avenue and East Market Street.

D. **Port Republic Road, Neff Avenue, University Boulevard Connection.** Construct connection for, at minimum, pedestrian, bicycle and/or public transit use.

E. **University Boulevard to Bluestone Drive.** Construct new bridge to connect University Boulevard to Bluestone Drive with bicycle and pedestrian facilities. Remove intersection of University Boulevard and Forest Hills Drive. Improve Bluestone Drive to Port Republic Road.

F. **Interchange Improvement at Exit 245.** Realign northbound exit ramp onto Port Republic Road with Forest Hill Road. Construct new entrance on Hunters Road to JMU facilities.

G. **Skylark Lane to Port Republic Road Connections.**

H. **Southeast Connector.** Construct in Rockingham County, a facility that connects Route 33, Port Republic Road, and the new Erickson Avenue-Stone Spring Road.

I. **Peach Grove Avenue Extended From Terminus of Peach Grove Avenue and Greendale Road in Rockingham County.**

J. **Devon Lane to Stone Spring Road Connection.**

K. **Mineral Springs Road to Stone Spring Road Connection.**

L. **South Main Street from Grattan Street to Port Republic Road.** Construct landscaped median.

M. **Intersection Improvement at South Main Street and Fairview Drive.** Create a "right-in right-out" only at the end of Fairview Drive onto South Main Street or remove the intersection by constructing cul-de-sac or other terminus at the end of Fairview Drive.

N. **Intersection Improvement at South Main Street and Port Republic Road.** Create slip lane and pedestrian refuge on Port Republic Road traveling westbound turning right northbound onto South Main Street.

O. **Maplehurst Avenue Extended.** Construct a road between Harrison Street and South Main Street.

P. **South Main Street from Route 704 in Rockingham County to Interstate 81 (Exit 243).** Widen to a four-lane facility with a median.

Q. **Intersection Improvement at South Main Street and South Avenue.** Widen intersection at South Main Street and South Avenue to accommodate additional lanes on South Avenue.

R. **East Kaylor Park Drive to South Gate and Boxwood Court Connection.** Realign Boxwood Court.

S. **Pleasant Valley Road from South Main Street to south City limits.** Improve to a three lane facility including a center turn lane.

T. **Greendale Road to Early Road Connection.**

U. **Willow Springs Road to Cecil Wampler Road Connection through Rockingham County.**

V. **Intersection Improvement at Reservoir Street and Cantrell Avenue.** On Cantrell

Avenue traveling eastbound onto Reservoir Street, construct dedicated right turn lane, slip lane and pedestrian refuge and provide for dual left turn lanes off of Reservoir Street.

W. Interchange Improvement. Reconstruct Exit 243.

X. South Connector. Construct a new limited-access facility connecting South Main Street at Exit 243 to proposed Southeastern Bypass in Rockingham County. (Alternative routes considered.)

Y. Lucy Drive from Evelyn Byrd Avenue to Reservoir Street. Construct a three-lane facility.

Z. Reservoir Street and Port Republic Road Intersection Removal.

AA. (Old) Stone Spring Road Intersection Removal.

SOUTHWEST

A. Erickson Avenue-Stone Spring Road Connector. Construct four to five lane facility between west City limits on Erickson Avenue to east City limits on Stone Spring Road. Connections to Route 33 and Port Republic Road in Rockingham County.

B. Pear Street and South High Street Intersection. Removal of intersection and street crossing at railroad. Construct cul-de-sac on Pear Street.

C. Baxter Drive Extended. Construct facility between South Main Street and West Mosby Road in Rockingham County.

D. Peoples Drive Extended From the Terminus of Peoples Drive to Baxter Drive at Tasha Circle.

E. Carpenter Lane. Realign Carpenter Lane with intersection of Pike Church Road at South Main Street.

F. Southwestern Connector Proposed. Construct a new limited-access facility from southern terminus of Garbers Church Road and Cecil Wampler Road. Improvements to Garbers Church Road from South High Street (Route 42) to Erickson Avenue.
Note: Two possible routes proposed.

G. Hidden Creek Lane Extended From Terminus of Hidden Creek Lane to Garbers Church Road With a Connection to Erickson Avenue.

H. Willow Hill Drive Connection.

I. Neyland Drive to Wyndham Drive Connection.

OTHER

A. Interstate 81 from South City Limits to North City Limits. Widen to six lanes or more and include the reconstruction of Buffalo Drive and additionally reconstruct Exit 251 in Rockingham County. Consider additional access points at Route 704 south of the City in Rockingham County and at Old Furnace Road in the City.

B. Railroad Relocation. Relocation of the Norfolk Southern Railroad from within the City limits to Rockingham County.

Bicycle & Pedestrian Facilities

In 2007, the Public Works Department began facilitating quarterly meetings between City staff and citizens who together make up the City's Bicycle & Pedestrian Committee. The Committee has been a valuable vehicle for bringing pedestrian and bicycle needs and concerns to the attention of City staff. The City recognizes the need to encourage bicycle and pedestrian travel, as they reduce traffic congestion, contribute to cleaner air, conserve energy, promote physical fitness, and result in a more pleasant atmosphere.

A list of priorities has been developed by the Committee which is being further refined by the Bicycle & Pedestrian Plan Advisory Committee (BPPAC). This separate committee began meeting in May 2009 and is working to update the City's Bicycle and Pedestrian Plan in the near future.

As traffic levels and associated congestion increase within the City, so does the need for a more encompassing system of bicycle facilities and pedestrian walkways. This deficiency is something that many residents in the City would like to see remedied. Better sidewalks, bicycle facilities or shared use paths placed between high-density residences and points of common destinations would help alleviate some of the growing traffic numbers throughout the City. Citizens are interested in having sidewalks installed leading to parks, schools, and other frequented destinations.

Pedestrian Facilities: The Public Works Department maintains all public sidewalks within the City limits, which for the most part are parallel to streets located within the street right-of-way. Though as of 2009 the Public Works Department presently maintains approximately 61 miles of sidewalk within the City, opportunities for pedestrian traffic remain limited. This deficiency is something many residents of the City would like to see remedied.

In addition to pedestrian infrastructure needs collected by the City's Bicycle & Pedestrian Committee, in partnership with schools and parents, the City has been evaluating and improving safe routes to schools and applying for funding through the VDOT Safe Routes to School program. According to the Comprehensive Recreation and Parks Master Plan, walking trails are one of the most requested improvements those polled within the City would like to see made.

Bicycle Facilities: The City adopted its first Bicycle Plan in 1994, and then adopted an update in 1999 and later in 2005. By generating an awareness of bicycling issues, the plan prompted the City to include bicycle facilities in the design and construction of several new streets including Neff Avenue, Port Republic Road, Linda Lane, and within the Erickson Avenue-Stone Spring Road project. It also promoted awareness of funding mechanisms the City has since used to obtain grant funds for changes to existing roadways.

The purpose of the Harrisonburg Bicycle Plan is to improve bicycle transportation within the City through public-private partnerships, grant opportunities, and redevelopment/expansion projects. The goal is to create and maintain a viable bicycle transportation network with safe and convenient facilities.

Off Road vs. On Road Facilities: Planning and designing new transportation routes that include sidewalks, bicycle routes, and shared use paths are essential to the success of an alternative transportation system. Where feasible and possible, the City makes adjustments during regular routine maintenance to accommodate bicyclists and pedestrians. The City works proactively to incorporate these elements into new roadway projects and retroactively when developing street widening projects. It is recognized that there are many residents that enjoy riding bicycles, walking, or jogging on shared use paths, while some bicyclists prefer to ride on existing streets, preferably in bicycle lanes, but also with motorized traffic. There are challenges with providing off road facilities adjacent to streets that serve adjacent land uses that create confusion for motorists and bicyclists alike. The City has identified that in the event of creating a limited access roadway—one which restricts or prohibits private drive entrance connections—a shared use path is ideal. This creates a safer environment for bicyclists where motorized traffic is generally traveling at higher speed rates. Where adjacent land use access connections are prevalent, the on-street bicycle lane is preferred.

Blacks Run Greenway Plan: Blacks Run is a six-mile-long stream that runs through the City, connecting neighborhoods in the north and south with downtown businesses, parks, and housing. Friends of Blacks Run Greenway (FBRG), a public-private organization that was formed in the fall of 2000, worked to establish a greenway path that would parallel Blacks Run and developed a Master Plan to develop concepts for construction of the trail. Significant challenges existed in the Master Plan and required the acquisition of significant easements and right-of-way. The trail was proposed to be adjacent to or directly through many industrial uses in the southern end of the City. The City's Bicycle & Pedestrian Committee have developed alternative routes to the Greenway Master Plan, which still meet the intent of the plan developed by FBRG.

Parking

Adequate and conveniently located parking is an important component of the City's transportation network. Sufficient and well-designed public parking can assist in enhancing the City's alternative transportation network. Parking decisions have shifted from a Council appointed authority to City staff.

In the downtown area, the availability of parking is a long standing concern for its many diverse users. Two major parking structures were built in the 1970's as economic development tools to encourage businesses to remain in the downtown area. In 2006, metered parking spaces were removed throughout downtown.

By ordinance, in designated areas, the City has "zone parking," which makes on-street parking reserved only for neighborhood residents and their guests. For zone parking to be available, it must be verified that at least 25 percent of cars parked on-street of a residential zone must be nonresidents. Additionally, it is incumbent upon the residents to submit a petition of at least 50 percent of the residents to create a restricted parking zone. Three zones have been established, all of which have differing criteria.

JMU issues parking passes for a fee for the many students, faculty, and staff that commute to campus on a daily basis. A parking permit, however, does not guarantee availability of parking. Neighborhoods adjacent to the university are often attractive locations for campus-related

parking. JMU's Comprehensive Master Plan indicates the expansion of existing parking amenities while also proposing new parking facilities. The City and JMU continue to work in collaboration to facilitate and improve the many issues with parking in the City.

Mass Transit

The Harrisonburg Department of Public Transportation (HDPT) began operation in November 1976 with the purchase of two taxi companies that were operating at a deficit and had planned to discontinue operations. Immediately after this purchase, efforts were made by the HDPT to coordinate all mass transit operations within the City. The Harrisonburg City School System, the Valley Program for Aging Services, Harrisonburg Social Services, the Health Department, and various other organizations participated in this coordination. In May 1977, City Council approved the purchase of three mini buses to begin a fixed-route system within the City. In October 1978, transit service began, with emphasis on the transportation needs of students and the elderly. HDPT also took over the operation of the public school's special education van and a vehicle that was used by the Valley Program for Aging Services.

Today, HDPT controls all of the public transportation operations that the City offers to its residents and visitors. In 2007, total transit ridership was 1,492,318. Transportation services provided by HDPT include: fixed-route mass transit buses, school buses, and paratransit operations to serve persons with disabilities—these include wheelchair-accessible buses.

Funding for these services is provided by the City, JMU, the Virginia Department of Rail and Public Transportation (VDRPT), and the Federal Transit Administration (FTA). HDPT is considered a small urban 5311 property for purposes of federal funding. The bus service has become an integral service to JMU, its students and staff, and helps alleviate traffic congestion. In the past few years, however, concerns have arisen over an increase in the number of commuter student parking permits issued by JMU, which has encouraged off campus students to drive to campus in place of utilizing the transit buses. The projected growth in the JMU student population and the corresponding increase in vehicular traffic, on roadways adjacent to the university, are a cause of great concern to HDPT as increasing traffic congestion has a direct and deleterious impact on our ability to operate mass transit services on a reasonable timetable.

Expanded Transit Operating Hours: To better meet the needs of our citizens transit service should be available to them when they most need it. The current operating hours of the City routes are from approximately 7:00 a.m. until approximately 7:00 p.m. As many of our riders are employed in industries that are not limited to traditional working hours, an effort should be made to expand existing hours of service to provide more service hours later each day to better serve the transportation needs of City citizens.

Operational Upgrades at JMU: JMU is a major generator of trips that are served by public transportation. The historic growth of JMU has provided a great deal of impetus for the HDPT to grow and expand its services. According to the JMU Office of Institutional Research, in 2002 JMU's fall enrollment stood at 15,612; by 2013 the State Council for Higher Education in Virginia (SCHEV) projects a total JMU fall enrollment of 19,996, an increase of 28 percent in a little more than a decade. This growth will place a greater demand for mass transit services. The

proposed closure of the JMU campus to private vehicles, as outlined in their Master Plan, will most likely cause demand for transit services to increase as well.

a. On/Near campus transit center: HDPT has currently reached a virtual limit to the number of transit buses that can be housed in the Godwin Hall Parking Lot. The addition of more vehicles to serve the growing campus population will require the identification of suitable layover points for buses and may require the construction of a dedicated mass transit center on or adjacent to the JMU campus.
b. Dedicated Transit Bus-Way: The current operation of HDPT buses in mixed traffic conditions without dedicated pull-off lanes, especially on roads adjacent to campus such as Port Republic Road, South Main Street, Cantrell Avenue, and Reservoir Street, create operational inefficiencies in both the delivery of transit services—having to contend with private vehicles—as well as the flow of private vehicular traffic. To address these operational inefficiencies, City staff will seek to identify appropriate corridors and deploy the required mechanisms for dedicated mass transit facilities where feasible.
c. Bus pull-offs on JMU Campus: Mass transit operations on the JMU campus could be made considerably more effective with the installation of dedicated bus pull-offs on Carrier Drive and Bluestone Drive, as well as the proposed Grace Street Transit corridor. The ability for a bus to pull out of the flow of traffic and standby at strategic locations to await passenger boarding and alighting increases can do a great deal to improve the efficiency and schedule adherence of mass transit. HDPT hopes to work with JMU to identify and construct the appropriate bus pull-off facilities on and around the JMU campus.
d. Bus arrival time system: HDPT hopes to deploy an electronic system that will allow transit customers to receive real-time bus arrival estimates at bus stops for transit services. The information could be received by automated instant messages, accessed by web-browsers on computers or by cell phones equipped with mobile web-browsing software, or even display on LCD/LED displays deployed at individual bus stops. This system would aim to reduce the anxiety associated with uncertainty about bus arrival times and increase the confidence that a passenger had not missed the bus.

Service Expansion to Rockingham Memorial Hospital (RMH): The opening of the new RMH campus provides a unique set of challenges to HDPT in its provision of mass transit services to the Harrisonburg community. As the hospital is moving from a location within the City limits to a site in the County, increased coordination and communication with the Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) members will be essential to future public transit infrastructure in the area. The relocation will inevitably increase the time and distance associated with transporting people to and from medical services located at RMH.

Downtown Harrisonburg: The accessibility of the many commercial, cultural, and governmental services that exist in the City's downtown area is important to HDPT. As more urban renewal takes place downtown, the need for mass transit services will grow. Along with the growth in demand for transit services there will be a need for a dedicated downtown transfer center that can accommodate a larger number of vehicles than currently serve the downtown

area. The existing transfer location at the Hardesty-Higgins House is not sufficient to accommodate the number of buses that currently serve the downtown area nor can it handle more buses from the increased demand that downtown development would require. As is it not an exclusive transit facility, drivers and passengers must continually contend with traffic generated by delivery trucks, private vehicles, and many other users of Bruce Street.

In light of these facts, HDPT intends to identify suitable locations in or around the downtown area on which to construct a dedicated transfer location that can accommodate a sufficient number of buses. Additionally, this transfer location may contain bicycle and pedestrian accommodations, a taxi cab stand, and a location for the launching of intercity bus operations that may locate in the City. In effect, it would serve as a hub for multi-modal transportation operations with easy access to the downtown area.

Construction of New Transit Facility: The current facility which houses HDPT operations was originally constructed in 1982, and despite subsequent additions, is currently approaching the end of its useful life. The growth in mass transit services provided by HDPT has placed a great deal of stress on the existing facility. HDPT has commissioned Parsons-Brinckerhoff to conduct a feasibility study to evaluate HDPT's needs for a new transit facility. HDPT hopes to have a new building constructed within the next three to five years.

Bus Stop Evaluation, Monitoring, and Improvement Program: Bus stops are an integral part of any mass transit system and HDPT is placing an increased emphasis on the need to upgrade the amenities at its more popular bus stops.

a. Bus Shelter/Bench Installation: HDPT plans to use data collected by its new Automated Passenger Counter systems in late 2009 and early 2010 to identify high traffic bus stops. Efforts will then be made to install concrete pads, benches, shelters, trash cans, bus information display boards, and lighting as appropriate. Additional efforts will be made to install benches and/or bicycle racks at appropriate bus stops that complement existing or planned bicycle and pedestrian facilities.
b. Solar powered bus shelter lighting: HDPT will attempt to place bus stop improvements in areas that take advantage of existing street lights. When this is not possible, HDPT will investigate the installation of solar power at bus shelters to provide power to illuminate the bus shelter.

Multi-Modal Nature of Transit Planning: HDPT recognizes that successful mass transit operations develop in tandem with an environment that provides effective pedestrian and bicycle infrastructure. HDPT also recognizes that a healthy transportation network should provide links between pedestrian and bicycle users to allow multi-modal opportunities for motor vehicle users. With this in mind, HDPT is committed to participating in planning for a vibrant multi-modal transportation environment with the appropriate federal, state, and local authorities.

Expansion of Transit Service into the Harrisonburg-Rockingham (UZA): The provision of seamless transportation services for citizens in the Harrisonburg urbanized area requires that HDPT work with MPO members to find ways to seamlessly offer transportation services across and between existing political boundaries. Specific areas for future service expansion include the

Massanetta Springs Area, an intercity bus service (i.e. to Charlottesville), and other transit service.

Investigate Methods of Electronic Fare Collection: Currently, HDPT collects all fare box revenues in a simple mechanical fare box, and is therefore incapable of integrating electronic fare media into its operations. Since the majority of HDPT passengers are JMU students, faculty, and/or staff, it would make a great deal of sense for HDPT to implement a system that would be capable of reading a JMU Access Card (JAC Card) and check to make certain that the card was valid. This system would allow HDPT to capture a greater number of dollars at the fare box, since JAC Cards from those who no longer attend or are employed at JMU continue to be used.

Computer-Aided-Dispatching/Automatic Vehicle Location: The effective scheduling and dispatching of paratransit vehicles can go a long way to creating more cost-effective service deployment. A computer program can use a GPS database to plan scheduled calls by geographical location and plan the most efficient manifest for each paratransit driver. As HDPT is very interested in reducing the cost of complementary paratransit service without compromising its quality, HDPT wishes to pursue the installation of Mobile Data Terminals and Automatic Vehicle Location technology on its paratransit fleet to achieve the cost savings that this technology promises.

Regional Transportation System

Harrisonburg is centrally located within the Shenandoah Valley and is bisected by Interstate 81, which serves as the major north-south transportation corridor along the Appalachian mountain range between New York and Tennessee. The portion of Interstate 81 located within the City's boundaries carries between 47,000-52,000 vehicles per day, which is heavily utilized by the trucking industry. Interstate 64, which carries approximately 37,000 vehicles per day, is a major east-west corridor that connects coastal metropolitan areas with inland communities as far west as St. Louis, Missouri. The interstate is accessible to the south via Interstate 81, which is approximately twenty-five miles south of the City. The close proximity of Harrisonburg to these interstates allows efficient delivery of services and makes Harrisonburg more accessible.

Metropolitan Planning Organization (MPO): Every urban region in the U.S. exceeding a population of 50,000 has a designated MPO to assist with transportation-related issues and to place the decision making process concerning transportation improvements in the hands of the localities, as opposed to being completely in the hands of VDOT. As transportation needs typically transverse political boundaries, it is important for growing jurisdictions to coordinate transportation programs and projects. The HRMPO was formed after the 2000 census, which determined that the Harrisonburg urbanized area exceeded the population threshold. The area that received this designation includes Harrisonburg, the Towns of Bridgewater, Dayton, Mount Crawford, and a portion of surrounding Rockingham County.

A policy board, comprised of local elected officials and state and local transportation agency officials, heads the HRMPO and looks at transportation on a regional scale. The board is assisted by the Technical Advisory Committee (TAC) and other special sub-committees, which provide both professional advice and relay public input to the board. The board and committees are responsible for developing a twenty-year, long-range transportation plan every five years. The

plan was last developed in August 2005. From the long-range plan, the three-year, short-term Transportation Improvement Plan (TIP) is developed and used for budgeting construction projects.

Rail Access: The City is served by three railroad companies: the Norfolk and Western Railway part of the Norfolk Southern Corporation, which travels north-south and provides local freight service to Grottoes and Elkton on a daily and requested basis; the Chesapeake Western Railway, which supplies local freight service to Harrisonburg and Elkton; and the Southern Railway, also part of the Norfolk Southern Corporation, which provides daily service to Harrisonburg and the Towns of Broadway and Timberville. There is no passenger rail service to Harrisonburg. The nearest passenger rail service is in the City of Staunton, approximately twenty-five miles to the south.

With limited grade separated crossings, this creates significant delay at railroad crossings on a daily basis. This has led to preliminary discussions between the City, County, and JMU to relocate a section of the Chesapeake & Western Railway around the northern edge of the City. This section of track currently traverses through the JMU campus. Possible alignments that would redirect this line through Rockingham County were proposed in 2005. The City has identified a federal program with dedicated funding to railroad relocations. Relocation would better serve Norfolk Southern customers and improve traffic congestion in and around the City. Relocation of the railroad could result in a conversion of portions of the existing Chesapeake & Western railway to a multi use greenway, or potentially serve as a short line trolley service to and from destinations within the City.

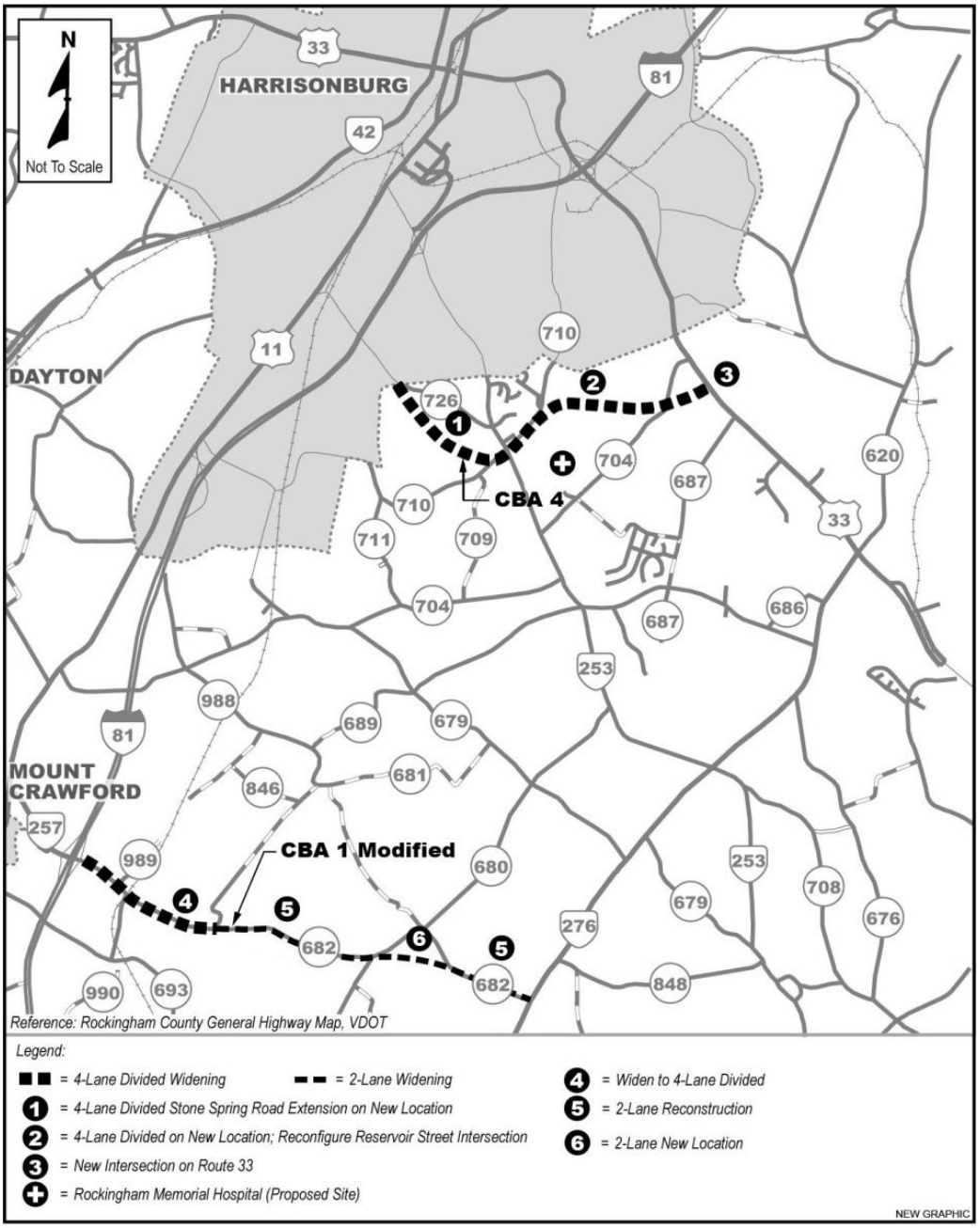
Air Transportation: The Shenandoah Valley Regional Airport is located in Weyers Cave, about 15 miles south of the City. Harrisonburg is a member of the Shenandoah Valley Regional Airport Commission, along with the cities of Waynesboro, Staunton, and the counties of Augusta and Rockingham. The airport supplies commercial flights to Dulles International Airport near Washington, DC. The airport offers door to door shuttle service to residents and visitors of the Airport's service area.

The Bridgewater Air Park is located approximately eight miles south of the City just outside of Bridgewater. The airport serves Rockingham County and is owned and privately operated by Rockingham Aviation Corporation. The paved runway extends 2,745 feet.

Southeast Connector: For many years, the City and County have recognized the importance of finding an alternate route to divert traffic around the City. The movement from Route 11, south of the City, to Route 33, east of the City, has been identified as a priority. A significant challenge in developing a route concept is balancing the need for efficient transportation service while maintaining a rural and agricultural base in Rockingham County. Two alignments have been developed and endorsed by the Commonwealth Board of Transportation and the Federal Highway Administration. Candidate Build Alternative 4 (CBA 4) has been prioritized and funded through VDOT's Six Year Improvement Program. This route extends the City's Stone Spring Road-Erickson Avenue project into the County, connecting with the newly relocated RMH location and eventually connecting to Route 33 close to its intersection with Boyers Road (Route 704). A longer range vision is considered in Candidate Build Alternative 1 (CBA 1),

which begins at the Mount Crawford/Bridgewater Exit 240 and would connect with Route 33 via Cross Keys Road (Route 276).

Figure 11-1: Harrisonburg Southeast Connector Location Study



Harrisonburg Southeast Connector Location Study

RECOMMENDED ALTERNATIVE

Transportation Goal, Objectives and Strategies

Goal 9. To develop and maintain a safe and convenient transportation system serving all modes of travel, such as, automobile, pedestrian, bicycle and transit.

Objective 9.1 To adopt, update regularly, and implement a City Street Improvement Plan of needed road improvements that serves existing and future land uses and is coordinated with road improvement plans of the Metropolitan Planning Organization, the Virginia Department of Transportation, and Rockingham County.

Strategy 9.1.1 To work with Rockingham County and VDOT to maintain a regional transportation plan for the MPO.

Strategy 9.1.2 To seek inclusion of the road improvements recommended in the City Street Improvement Plan in the MPO regional transportation plan and to coordinate the two plans.

Strategy 9.1.3 To seek developer participation in completing the street network as shown on the City Street Improvement Plan.

Strategy 9.1.4 To expand the City Street Improvement Plan to include design standards for streets that reduce traffic congestion within the transportation system while accommodating all transportation modes. Standards should be included both for streets constructed by the City and those by the private sector specifying appropriate:

- interconnectivity of the street system
- street widths adequate to handle projected traffic volumes based on traffic impact analyses while avoiding excessive pavement widths
- pull-off areas for buses on collector and arterial streets
- bicycle facilities
- sidewalk widths and location within the street right-of-way.

Strategy 9.1.5 To include applicable standards developed under Strategy 9.1.4 in the Subdivision Ordinance and Design and Construction Standards Manual, as appropriate.

Strategy 9.1.6 To limit driveway access along arterial and collector streets, thus increasing safety and facilitating efficient traffic flow.

Strategy 9.1.7 To replace and rehabilitate bridges as needed to maintain the functionality and safety of the road network.

Strategy 9.1.8 To resurface pavement as necessary to obtain maximum substructure life.

Strategy 9.1.9 To maintain storm drainage facilities to ensure protection of roadways from flooding, erosion or undermining, and environmental water quality.

Strategy 9.1.10 To install broadband connections to all traffic signal systems.

Strategy 9.1.11 To establish a transportation management center that would enable real-time monitoring of signals and traffic flow throughout the City.

Objective 9.2 To promote alternative modes of transportation, and develop strategies that reduce motorized traffic demand on City streets.

Strategy 9.2.1 To plan for integrated, multimodal features to include bus, bicycle and pedestrian access into all new street and street improvement projects.

Strategy 9.2.2 To complete development of an on-ground bicycle/pedestrian network that is continuous and interconnected.

Strategy 9.2.3 To consider alternative techniques to reduce traffic congestion such as expanded transit service, integrated and optimized traffic signal timings, re-marking lanes, and integrating bicycle/pedestrian enhancements.

Strategy 9.2.4 To prioritize, implement and regularly update the Harrisonburg Bicycle & Pedestrian Plan.

Strategy 9.2.5 To seek conversion of the eastern most line of the Norfolk Southern system in Harrisonburg to a rail-trail as shown on the City Street Improvement Plan.

Strategy 9.2.6 To require private developers to implement bikeway improvements in the City Bicycle & Pedestrian Plan that directly serves their property.

Strategy 9.2.7 To review the following areas and make recommendations for sidewalk and shared use path improvements:

- within one quarter mile of schools/universities
- within one quarter mile of parks
- within one quarter mile of public facilities.

Strategy 9.2.8 To continue to require all development and redevelopment projects to provide desired sidewalks on both sides of the street.

Strategy 9.2.9 To continue to ensure that all new sidewalks and sidewalk repairs meet American's with Disability Act (ADA) accessibility standards and for projects in or around sidewalks to maintain ADA accessibility standards.

Strategy 9.2.10 To indicate specific projects for the annual allocation of funds for sidewalk, bicycle, and shared use path improvements in the Capital Improvement Program.

Strategy 9.2.11 To establish wayfinding signage for bicycles similar to the City's adopted wayfinding program.

Strategy 9.2.12 To install bicycle racks at or around all public facilities.

Strategy 9.2.13 To coordinate regional bicycle facilities with the Central Shenandoah Planning District Commission.

Objective 9.4 To promote and seek to increase transit ridership.

Strategy 9.4.1 To continue to work with JMU and EMU to increase transit use by students, faculty and staff.

Strategy 9.4.2 To promote bus, bike or walk to work and school days.

Strategy 9.4.3 To work with the City School Board to promote school buses, walking or bicycling as the primary forms of transportation to school rather

than private vehicles, i.e. Walk to School Days and Safe Routes to School.

Strategy 9.4.4 To continue to revise and improve City bus routes and schedules to serve residential areas and major destinations (universities, major employment sites, shopping centers, downtown).

Strategy 9.4.5 To work with local employers to provide incentives to employees to travel to work by bus, bicycle or walking.

Strategy 9.4.6 To seek improvement of transit and paratransit services for the elderly and handicapped.

Strategy 9.4.7 To work with Rockingham County and other MPO members to expand existing and provide new transit routes from County growth areas to the City.

Strategy 9.4.8 To promote the development of a shuttle service from the City to the Shenandoah Valley Regional Airport at Weyers Cave.

Strategy 9.4.9 To promote the availability of public transportation connectivity between Harrisonburg and various destinations.

Strategy 9.4.10 To implement technologies that allow for both increased information to be accessible to transit users and increased efficiency in resource deployment.

Strategy 9.4.11 To identify and construct the appropriate facilities to accommodate future transit operations with an eye toward establishing transit-only facilities in appropriate corridors.

Strategy 9.4.12 To continue to grow mass transit operations to keep pace with the increased demand stemming from development in the City, JMU, and other jurisdictions falling within the planning area of the Harrisonburg-Rockingham MPO.

Strategy 9.4.13 To increase operational hours to make transit access more available.

Strategy 9.4.14 To improve the amenities at transit stops to create a more comfortable experience for HDPT customers.

Strategy 9.4.15 To work with all relevant parties to engage in truly multi-modal transportation planning.

Objective 9.5 To assess and seek to mitigate and improve the transportation impacts of both public and private development and redevelopment projects.

Strategy 9.5.1 To continue requiring and reviewing traffic impact studies with all rezoning and special use permit applications proposing development of sufficient size to create a significant traffic impact. Such studies should include:

- Impacts of project vehicular traffic on the road network
- Impacts of the project on pedestrian and bicycle circulation and transit use
- Mitigation measures that would lessen adverse impacts and maintain a desired level of service of "C" or better on nearby roadway links and intersections

Strategy 9.5.2 To perform similar traffic impact studies for public facilities projects.

Strategy 9.5.3 To review Zoning Ordinance parking requirements for multifamily projects to determine their adequacy. Consideration in this review should be given not only to increasing required parking, but also to measures to reduce parking demand.

Objective 9.6 To reduce automobile trips through innovative means.

Strategy 9.6.1 To promote mixed use neighborhoods as recommended by the Land Use Guide so that residents of these neighborhoods can easily walk, ride a bicycle, or take transit to work, shopping, school, place of worship, and recreation.

Strategy 9.6.2 To expand opportunities for reductions in parking requirements for commercial and residential projects designed to take advantage of transit and for mixed use developments where shared parking is feasible.

Strategy 9.6.3 To promote carpooling through incentive programs, such as, a "guaranteed ride home" program.

Strategy 9.6.4 To encourage community bike share programs.

Objective 9.7 To improve the safety of all modes of travel.

Strategy 9.7.1 To incorporate safety considerations for all travel modes (vehicular, pedestrian, bicycle, public transit) in the design of roadways.

Strategy 9.7.2 To incorporate traffic calming measures in neighborhoods, near schools and universities, and other appropriate areas to discourage speeding and improve pedestrian safety.

Strategy 9.7.3 To relocate the eastern most line of the Norfolk Southern Rail system in Harrisonburg to a location outside the City so as to remove conflicts between rail traffic and vehicular, pedestrian and bicycle traffic.